



# Aviation Education News



Distributed Quarterly to Promote Aviation Education and Awareness in Virginia

February 2002

## *In this Issue:*

<b>America's Aviation Adventure</b>	<b>Page 1</b>
<b>President's Notes</b>	<b>Page 2</b>
<b>Teachers Grant Recipients</b>	<b>Page 3</b>
<b>Space Day 2002</b>	<b>Page 4</b>
<b>Hampton University Flight Team</b>	<b>Page 5</b>
<b>Aviation Education Corner</b>	<b>Page 6</b>
<b>NASA NEW Workshops</b>	<b>Page 6</b>
<b>Web Sites</b>	<b>Page 7</b>
<b>Calendar of Events</b>	<b>Page 8</b>

## **America's Aviation Adventure Takes Flight!**



Less than two years from now on December 17, 2003, the world will celebrate the centennial of powered, controlled flight. Where did this flight take place and where is that aircraft today? Do you know where the "World's Oldest Continually Operated Airport" is located? Where can you stand nose-to-nose with one of the highest flying and fastest aircraft ever built? Answer these questions by participating in America's Aviation Adventure.

Recently fifteen aviation museums and sites in Maryland, the District of Columbia, Virginia, and North Carolina joined together to create a "trail" covering the history of aviation from the location of the first flight in 1903 to modern research centers developing the technology that will keep us flying for the next 100 years. America's Aviation Adventure (AAA) encourages the public to visit these sites, learn more about aviation, and earn a special AAA pin (after visiting eight sites).

Participating aviation museums and sites include:

Glenn L. Martin Aviation Museum - Middle River, MD  
Baltimore-Washington International Airport Observation Gallery - BWI Airport, MD  
Goddard Space Flight Center Visitor Center - Greenbelt, MD  
College Park Aviation Museum, College Park, MD  
National Air and Space Museum - Washington, DC  
Marine Corps Air-Ground Museum - Quantico, VA  
Science Museum of Virginia - Richmond, VA  
Virginia Aviation Museum - Richmond International Airport, VA  
U.S. Army Transportation Museum - Ft. Eustis, VA  
Air Power Park - Hampton, VA  
NASA Langley Research Center - see Virginia Air and Space Center  
Langley Air Force Base - Langley AFB, VA  
Virginia Air & Space Center - Hampton, VA  
Naval Air Station Oceana - Virginia Beach, VA  
Wright Brothers National Memorial - Kill Devil Hills, NC

For more information about the program (and to request a color brochure) visit the web site [www.americasaviationadventure.com](http://www.americasaviationadventure.com) or call toll free 1-888-824-7463.

*Answers: Kill Devil Hills, NC and National Air and Space Museum, Washington, DC  
College Park Airport, College Park, MD  
SR-71 "Blackbird" at the Virginia Aviation Museum, Richmond, VA*



**AVIATION WORLD'S FAIR 2003**  
NEWPORT NEWS • WILLIAMSBURG INTERNATIONAL AIRPORT  
NEWPORT NEWS, VIRGINIA • APRIL 7-27, 2003  
[www.aviationworldsfair.com](http://www.aviationworldsfair.com)

## **Historic Virginia Aviator**

After our article last month about a circumnavigation flight around the United States, we were reminded of a prominent Virginia aviator who flew around the United States in 1992. Mr. Rucker Tibbs of New London Airport, a member of the Virginia Aviation Hall of Fame, flew his 1939 J-4 Cub around the country in 28 days.

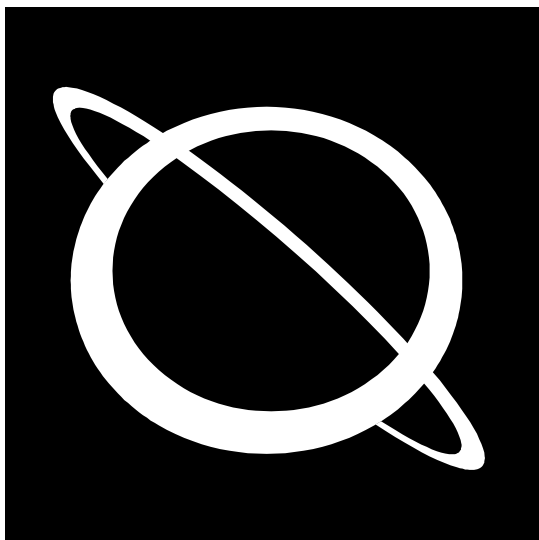
## PRESIDENT'S NOTES

The NASA Langley Research Center's Office of Education (OEd) is working in collaboration with the Virginia Department of Aviation which is an excellent way to maintain two-way communication between federal and state aviation education concerns.

The AIAA is looking for teachers to become Educator Associates. If you become an "Educator Associate" this could bring new energy into your classroom. The benefits are as follows: Participation in local AIAA activities, attend AIAA conferences free, tap into AIAA clearinghouse of aerospace information, gain recognition for efforts in education, and qualify for up to a \$200.00 grant to push your science, math, or related academic agenda forward. One of the little known benefits is to be able to find college students from AIAA student chapters who could act as mentors and advisors to your students for aeronautical projects. They have developed innovative programs for obtaining an AIAA Foundation Education Classroom Aid Grant. For information contact: Lisa Bacon, 800-639-AIAA, ext. 527 or via e-mail lisab@aiaa.org.

In working with the AIAA precollege outreach activities, an educational partnership has been established with LEGO Friends and Family program. To find out more information about the FIRST LEGO League, please go to <http://www.firstlegoleague.com>.

Peter D. Thomas  
(Aerospace Education Project Manager, ViGYAN, Inc.)  
Office of Education  
NASA Langley Research Center



### VASEF AVIATION EDUCATION NEWS

is published quarterly in support of aviation education in the Commonwealth of Virginia by the Virginia Department of Aviation.

#### VASEF BOARD

**Peter D. Thomas, President**  
(NASA)

**Betty Wilson, Secretary**  
(Virginia Department of Aviation)

**Tom Tyndall, Treasurer**  
(Henrico County Public Schools)

**Maurice D. Dacey, Member**  
(Richmond FSDO)

**Bryan Elliott, Member**  
(Charlottesville-Albemarle Airport)

**Ted Morris, Member**  
(Training Services, Inc.)

**Tom Vick, Member**  
(Averett College)

**Jack Simons, Member**  
(Experimental Aircraft Association)

**Darryl Stubbs, Member**  
(Norfolk State University)

**Vernon Wildy, Member**  
(Virginia Department of Education)

VASEF NEWS Editor: Betty Wilson

Please send story ideas, photographs, calendar events, and other items for possible inclusion to:

Betty Wilson  
Virginia Department of Aviation  
5702 Gulfstream Road  
Richmond, Virginia 23250-2422  
(804) 225-3783  
(804) 236-3635 (FAX)  
wilson@doav.state.va.us (E-mail)  
<http://www.doav.state.va.us> (Internet)



#### VASEF PURPOSE

The Forum is a non-profit organization to promote and foster aviation and space education among public and private schools, colleges and universities, and community and civic groups, and to promote increased public understanding of aviation and space and their economic, social, and career values in our society and in the Commonwealth of Virginia.

## 2001/2002 Teachers Grant Recipients

The Virginia Department of Aviation received quite a few applications for the 2001/02 Teachers Grant Program. This program is open to classroom teachers in grades K-12, in any discipline, as long as the lesson involves aviation. Grants of up to \$250.00 will be awarded until a predetermined maximum limit has been reached. Projects must be completed by the end of the school year in which they are approved.

Recipients of this year's grants include:

**Angela M. Parker** of Lawrenceville teaches reading to grades 2 and 3 at Meherrin-Powellton Elementary.

**Lesson Idea:** This year Meherrin-Powellton Elementary School was fortunate to implement a new, exciting reading program called *Read Well*. This program has 38 units of instruction, designed for beginning first grade readers and for second and third graders who are not fluent readers. *Read Well* has also been used successfully in kindergarten.

In Unit 38, students take flight. Students will read how early Greeks dreamed of flying. Also, students will read about hot air balloons, how gliders work, and about the Wright Brothers first flight. One of the suggested projects that students will complete in this unit is that they will make a paper glider.

**Learning Outcomes:** This project will enhance students' acquisition of SOLs across all four content areas. Although this project will specifically address SOLs in language arts and social studies, math and science concepts will be addressed when applicable.

Through this theme on flight, the teacher will celebrate students' accomplishments. The students will see themselves like the Wright Brothers...they have learned to fly (completion of *Read Well* program). As students accomplish this goal they will be encouraged to tell where they would like to travel, through the exploration of books that will take them where they'd like to go and through writing. Students will study the history of flight -- from stories and dreams to hot air balloons, gliders, planes, jets, and spaceships. Students will do research and write reports about aviation.

Students will also participate in a play entitled --"Bored--Nothing to Do!" This play focuses on two bored boys who have an idea and decide to build an airplane that actually flies from parts that they found around their house.

As a culminating activity, students will build model airplanes, spaceships and gliders. They will complete an aviation scavenger hunt. Tentatively they will visit a local airport, invite a pilot to class, or visit the Virginia Aviation Museum if approved by the administration and parents.

The ultimate goal is for students to be sparked to read stories about flight and to enjoy reading other stories of interest to them.

**Sharon Plymire** teaches an "Introduction to Technology Synergistics" to 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade students at Vernon Johns Middle School in Petersburg.

**Lesson Idea:** Students will build and fly solid fuel and bottle rockets.

**Learning Outcomes:** Students will be exposed to solid fuel and bottle rocket construction, principles of rocket flight and rocketry safety.

**LaVerne B. Hamlin** teaches Physics to 12<sup>th</sup> graders at Armstrong High School in Richmond. Her team members include Mr. Koshock, Mr. Rollins, Mr. Cooke, and Mrs. McCall.

**Lesson Idea:** "Flight 411 - An Interdisciplinary Lesson Plan."

The students will complete five learning stations dealing with airplane design, history of airplanes, navigation and flight planning, and research aircraft presentations.

This lesson activity involves five interdisciplinary subjects. These subjects are art design, history, physics, math, and communications skills.

First students will research the history of airplanes through their early American history classes. The students will research styles and designs of planes originating from the Wright Brothers' era. Students will spend two weeks doing this research and produce one history research paper.

Next students will complete several creative future designs of aircraft through their art classes. Students will be able to develop their creative skills through drawings, designs and models. Students will complete the artistic activities during a three-week time schedule. These aircraft will be on display during an aircraft fair. Students will be able to compete with other students for best design and applications to future navigation planning.

The next step during this nine-week activity will involve students developing navigation and flight planning. Students will be exposed to the physics concepts by problem solving the

following areas: rate and distance problems, average ground speed, application of aeronautical charts involving calculations between two airports, and flight planning involving fuel. The previous physics concepts will be completed through the use of graphing calculators during their math courses. These activities should take two weeks in their physics and math classes.

Finally, the nine-week activity will end by visiting the local aerospace museum. Students will summarize their experiences through research papers during their English communication classes. Students will have a chance to connect all subject areas through implementation of all objectives and understand how all subjects are actually connected to each other.

**Learning Outcomes:** The following outcomes will be accomplished through Flight 411 - Interdisciplinary Lesson Plan: students will develop math skill through various problem solving activities, students will develop artistic creations involving future airplane designs, students will increase their writing and presentation skills, students will develop an understanding and appreciation for aviation, students will learn to work in cooperative teams, students will increase self esteem through presentation formats, and students will learn to connect all subjects with each other.

**Frank H. Morse** of South Hill teaches science to 4<sup>th</sup> grade students at Buckhorn Elementary School.

**Lesson Idea:** Several years ago, while doing a lesson on measurement, my math students were assigned the task of making a paper airplane. The intent was to measure the distance each airplane flew. It quickly evolved into a lesson on graphing, decimals and geometry.

This year, my class and Mrs. Rachel Johnson's third grade class will expand upon the lesson. One of the areas the lesson will cover will be the attempt to break the world's record for flight time. Last year we established a class record of 13.1 seconds for extended flight. Our goal was to break the world's record of just over 29 seconds.

The students involved in this project will have to create their own paper airplanes. They will also be given pre-designed airplanes to use. Flight times will be taken on the student designed and pre-designed airplanes. They will observe the differences in distance, height, speed, angle, flight time, and design. Since we will conduct this outdoors, the students will also be able to observe how wind factors can affect aviation.

Cont'd on Page 7



## Space Day 2002 ... Adventure to Mars!

**Space Day**, which is celebrated each year on the first Thursday in May, will blast off on May 2, 2002. Co-chaired by former Senator John Glenn, this award-winning global celebration is dedicated to the extraordinary achievements, benefits and opportunities in the exploration and use of space. The goal of **Space Day** is to advance science, math and technology education and to inspire young people to realize the vision of our space pioneers.

**Space Day** is a massive grassroots effort with events in all 50 states in the U.S., and throughout Canada. It has become a global enterprise celebrated in 21 countries on six continents. **Space Day 2001** received official proclamations from 18 governors and 21 mayors across the U.S. and Canada.

**Space Day ... Adventure to Mars!** will focus youngsters' attention on expanding our scientific frontiers to one of Earth's nearest planetary neighbors.

Three new *Design Challenges* created by Challenger Center for Space Science Education will be the educational focus of **Space Day 2002**. Newly expanded to include elementary and middle school levels, the *Design Challenges* encourage students in grades 4-8 to use creative problem-solving, critical thinking and teamwork to solve challenges involved in exploring Mars. Students will be able to access unique high-quality, user-friendly collaborative online tools provided by Challenger Center and ePALS Classroom Exchange™.

On **Space Day**, teachers, students and citizens from around the world will once again be able to participate in **Cyber Space Day**, the only annual webcast entirely devoted to science, space and math. Stay tuned to [www.spaceday.com](http://www.spaceday.com) for more information, or check out the archive of **Cyber Space Day 2001** on the site.

Millions of students, teachers, astronauts, scientists, and space enthusiasts across North America and beyond celebrate **Space Day** every year. To find out how local schools, communities and museums celebrated **Space Day 2001**, check out "Space Day in Your Neighborhood" at [www.spaceday.com](http://www.spaceday.com).

**Space Day** enjoys the support of more than 70 partners including prestigious nonprofit, educational, governmental, and youth organizations; major school districts; and leading cable, media, technology, and aerospace companies. These organizations represent millions of members and employees throughout the world.

*reprinted from [www.spaceday.com](http://www.spaceday.com)*

## National Air and Space Museum Calendar

Wednesday, February 20, 2002

### Wernher von Braun Memorial Lecture

**"An American in Orbit -- Looking Back 40 Years with John Glenn"**

On February 20, 1962, with the United States still trailing the Soviets in the Cold War's most sensational competition, veteran Marine fighter pilot John Glenn took America's manned spaceflight program into orbit. For the first time. Exactly 40 years after his first flight in space, John Glenn delivers the 2002 Wernher von Braun Memorial Lecture at the National Air and Space Museum.  
8 p.m. Langley @Theater.

*This lecture is free but tickets are required. Tickets available at the Theater box office beginning January 14, and through Tickets.com by calling (800) 529-2440, or visiting their website at [www.tickets.com](http://www.tickets.com). There is a small service fee on all Ticket.com orders.*

Wednesday, March 13, 2002

### Jaylee and Gilbert Mead Exploring Space Lecture Series

**Owen Gingerich**

The first of four distinguished guest lecturers featured in this lecture series will share personal insights and professional observations on the science of cosmological thinking and the ongoing quest to understand our elegant and evolving Universe.  
8 p.m., Langley IMAX@Theater.

*See above for ticket information.*

Saturday, March 16, 2002

### National Air and Space Society Lecture

**"The Fight for Air Superiority during World War II"**

Col. Robert "Shorty" Rankin, USAF (Ret.) and Gen. Gunther Rall share their experiences as World War II fighter pilots. Col. Rankin, a decorated fighter ace, flew the Republic P-47D Thunderbolt for the 56th Fighter Group's 61st Fighter Squadron. Gen. Rall, the retired commander of the West German Air Force, flew more than 600 combat missions and was credited with 275 aerial combat victories, making him the world's leading living ace.  
8 p.m., Langley IMAX® Theater.

*Admission is free but tickets are required. For tickets, call the Society's membership office at (202) 357-3762.*

### General Electric Aviation Lecture

**Gary E. Krier**

Former research pilot Gary E. Krier will share his experiences as a member of the team that pioneered Digital Fly-By-Wire (DFBW) technology -- the technology that uses electrical systems rather than mechanical means to fly. DFBW transformed the relationship between the pilot and the computer and validated concepts of all-electric flight control systems now used on nearly all modern high-performance aircraft.  
7:30 p.m., Langley IMAX® Theater.

*See Wernher von Braun Memorial Lecture for ticket information.*

## Hampton University Flight Team Qualifies for National Competition

The Hampton University Flight Team placed in the top three teams out of seven competing at the National Intercollegiate Flying Association's (NIFA) Region Ten Safety Conference and Competition (SAFECON) and earned them an invitation to the National SAFECON to be held May 13-18, 2002 at Ohio State University, Columbus, Ohio. Hampton University most probably is the only Historic Black College and University represented at the National competition



The Region 10 Competition was held October 25 – 27, 2001 at Hickory, Regional Airport, Hickory, NC and was hosted by Caldwell Community College. The schools who participated, in order of their standings in the competition, were: (1) The U.S. Naval Academy - Annapolis, MD, (2) Averett College – Danville, VA, (3) Hampton University, Hampton, VA, (4 tie) Guilford Technical and Community College – Greensboro, NC, (4 tie) Caldwell Community College located in Hickory, (5) Lenoir Community College, Kinston, NC, and (6) Virginia Tech – Blacksburg, VA.

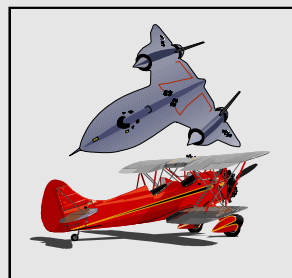
The Teams competed in ground and flight events. The ground events were manual computer accuracy, comprehensive air navigation, ground trainer simulated flight problem, aircraft inspection, and aircraft recognition. Flight events consisted of precision power-on and power-off landings, air navigation and message drop.

In the battle to score points for the Team by placing in the top 10 competitors in each event (5 contestants from each team are entered in each event), Jack Johnson took first place in aircraft recognition and short field landings with a 9<sup>th</sup> place in the air navigation problem and a 5<sup>th</sup> in aircraft preflight. In manual computer accuracy, Sherrard Howe placed 2<sup>nd</sup>, Justin Howe placed 8<sup>th</sup>, and Michael Morris placed 9<sup>th</sup>. Brien Jordan-Jack, Scott Caesar and Marcus Salem placed 4<sup>th</sup>, 5<sup>th</sup> and 8<sup>th</sup> respectively in power-off precision landings. Pilot Brien Jordan-Jack and Message Drop Master Chris Laufman were 8<sup>th</sup> in the message drop. Brien Jordan-Jack also placed 7<sup>th</sup> in the aircraft simulator event. A Hampton Team member, Jack Johnson placed 3<sup>rd</sup> in the "Top Pilot" competition. The Team voted Chris Laufman the "outstanding team member".



The Flight Team is supported by the Aviation Department at Hampton University, which is directed by Department Head Carey Freeman, and the School of Engineering and Technology headed by Dean Morris Morgan. The HU team consists of 14 aviation students led by Team Captain Brien Jordan-Jack and advised and coached by Aviation Department faculty member Captain Darryl Stubbs, a retired Navy Pilot and past Professor of Naval Science at Hampton University. While the NIFA competitions were new to this particular group of members, Captain Stubbs brings to the Team the experience of having participated in many regional and national meets with other teams. With the combined efforts of the Alpha Eta Rho aviation fraternity, Captain Stubbs and the Team are optimistic about their chances of doing well at the National competition.

Cont'd on page 7



## VIRGINIA AVIATION MUSEUM CALENDAR

**February 21, 2002**

### Guest Lecture Series

#### **"Cold War Revisited"**

Gary Powers, Jr. discusses the events that transpired 40 years ago when his father, Francis Gary Powers, was released in a dramatic East-West spy swap. The U-2 he was flying was shot down May 1, 1960 over Soviet territory. Today Gary Powers, Jr. is working toward the establishment of a Cold War museum to educate the public about the period of U. S. and Soviet rivalry.

**March 16, 2002**

### **Ultralight Safety Seminar**

If you fly an ultralight now, or have ever thought of flying one, come out and hear the experts discuss safety techniques, maintenance and other concerns. Co-sponsored by the Virginia Department of Aviation. For more information call Carolyn Toth at (804) 236-3637.

**March 23-24, 2002**

### **Trains, Planes & Automobiles -- Model Railroad Show and Sale.**

LGB, Lionel, American Flyer, Z, N, HO gauge trains travel through detailed dioramas and layouts. Hands-on workshops and fun for the whole family. 9:30 a.m. - 5:00 p.m.

**March 21, 2002**

### Guest Lecture Series

#### **"Fast FAC -- The Stormy Mission."**

Retired Brigadier General Ken Strafer, USAG Special Operation Forces, who served in combat in Vietnam, Grenada and the Gulf War, details his experiences. 7:00 p.m. Free.

For further information on events and schedules, call (804) 236-3622.

## Aviation Education Corner

### Interdisciplinary Learning Activities

#### Science

- .. Compare bats with airplanes.
- .. Discuss why some birds fly and some do not.
- .. Predict how aircraft will function in space.
- .. Discuss why some plants have seeds that "fly."
- .. Discuss why wind is important to flying.
- .. Compose a list of living things that fly and a list of those that do not fly.
- .. List safety concerns pilots address when flying in aircraft.
- .. Compare and contrast how helicopters and airplanes fly.
- .. Compare and contrast some of the different kinds of aircraft.

#### Mathematics

- .. Experiment building kites with different geometric shapes. Determine which kite flies the best.
- .. Determine how fast students can flap their arms. Graph and compare.
- .. Many birds migrate. Using a map, calculate how far some birds travel when they migrate.
- .. Make an aircraft drawing by connecting dots using numbers that require students to count by 2s or 3s.
- .. Test fly a paper or Styrofoam glider and determine the glide time. Record and graph results.

#### Language Arts

- .. Create an ABC picture dictionary of flight.
- .. Read mythology stories such as Icarus that are related to flight.
- .. Locate stories about flying in the school library.
- .. Have students write poems about flying.
- .. Maintain a "Book Center" with flight-related stories for students to read.
- .. Write open-ended stories about flying and have the students complete them.
- .. Develop flash cards for the parts of an airplane.
- .. Have students spell their names using the International Phonetic Code Alphabet.
- .. Make a bulletin board using aviation words that begin with the letters of the alphabet.
- .. Have students who have flown write about their experiences.

### International Phonetic Code Alphabet

A .....	Alpha
B .....	Bravo
C .....	Charlie
D .....	Delta
E .....	Echo
F .....	Foxtrot
G .....	Golf
H .....	Hotel
I .....	India
J .....	Juliet
K .....	Kilo
L .....	Lima
M .....	Mike
N .....	November
O .....	Oscar
P .....	Papa
Q .....	Quebec
R .....	Romeo
S .....	Sierra
T .....	Tango
U .....	Uniform
V .....	Victor
W .....	Whiskey
X .....	X-ray
Y .....	Yankee
Z .....	Zulu

### NASA Educational Workshop for Educator/Administrator Teams

(Langley Research Center)

A two-week workshop occurring July 7-20, 2002.

Participants will:

- Practice a "hands on/minds on" instructional approach integrating science, mathematics, technology, and geography.
- Explore topics relating to Earth Science, Aerospace Technology, Human Exploration and Development of Space, Space Science, and Biological and Physical Research.
- Acquire and use NASA curriculum support materials.
- Work with their colleagues to model teaching, learning, assessment and professional development strategies called for in the science, mathematics, geography, and technological literacy standards.
- Work cooperatively in groups and discuss the use of new knowledge and skills.
- See NASA's state-of-the-art research in action and meet with scientists and engineers.

Deadline for application is **March 1, 2002**.

For more information and an application form visit <http://education.nasa.gov/new>; e-mail: [new@nsta.org](mailto:new@nsta.org); or fax 703-522-5413.

Cont'd from Page 5

With the National Competition at Ohio State University on the horizon, the team is working steadily to ensure they are well prepared. To do this they need to raise the needed funds to prepare and to make the trip to the competition. In order to accept the invitation and participate, the team will need roughly \$10,000 for team training, travel and accommodations. Those wishing to contribute to the Team in their effort to represent Hampton University at the National level, please send your contribution to the Department of Aviation, Hampton University, Hampton, VA 23668. Make checks payable to the "Hampton University Flight Team".

Cont'd from Page 3

**Learning Outcomes:** This activity will encompass several third and fourth grade Virginia Standards of Learning Objectives as well as national math and science standards for both grades.

**Jennie J. Finney** of Danville teaches science and math to 5<sup>th</sup> graders at Stony Mill Elementary School.

**Lesson Idea:** "Toys Educate Kids About Aerodynamics" (TEKKA)

Kites and gliders -- "toys" that teach some of the basics of aerodynamics will be utilized by approximately 50 fifth grade students from two science and math classes in a rural school setting. The construction of both of these teaching tools will be completed by students. The student-constructed models will be used further for "hands-on" scientific investigations.

In the first activity, students will construct and fly a simple sled kite. Construction materials for each kite will be two drinking straws, cellophane tape, scissors, string, metric ruler, hole puncher, paper clips, selected paper, and decorating materials (such as markers, crayons, colored pencils). Students will incorporate measurement and geometry skills in the construction of the kites and will then fly the instruments. Students will use the science skills of observation, inference, prediction, collecting data, and drawing conclusions to respond to the following:

1. Why are kites made of lightweight material?
2. What can make your kite fly higher or lower?
3. Can kites be used to lift objects? Give examples.
4. When I walk with my kite, it ...
5. When I run with my kite, it ...
6. Predict what the effects of using a kite tail will be.
7. After the test flights, answer the following: If the tail is shortened, then the kite will fly like ...
8. After the test flights, answer the following: If the tail is lengthened, then the kite will fly like ...
9. Graph the flight time for the kite's flight with and without a tail.

In the second activity, students will build flying model gliders from prepared kits. The effect of weight and balance on the flight characteristics of the model gliders will be examined. Basic terminology will be introduced (fuselage, wing, flap, aileron, elevator, rudder, lift, force, etc.). Students will manipulate variables as they make their test flights and will then make modifications. For example, students will add weight at different places on the glider or cut off a small portion of each wing to investigate effects. Students can measure and record the distance of the longest flight. Prizes (for example, a book about flight or other model kits) in several different flight categories can be awarded to help sustain the interest of students.

**Margy Natalie** of Herndon teaches 7<sup>th</sup> graders at Rachel Carson Middle School.

**Lesson Idea:** Students would build U-control kit planes. During the construction of the airplanes, students will learn techniques for construction and compare the methods used for models to different types of construction used in homebuilt and commercial aircraft. Students will learn the terminology used in aircraft construction including correct names for all of the components in the kit aircraft. The outcome of this section of the unit would be for the students to learn the correct names for the parts of the aircraft and their functions.

Once the aircraft are built we would learn to fly them using the control surfaces appropriately. Students will study how the different control surfaces affect the movement of the aircraft.

At the end of this project students will be able to identify the control surfaces of fixed wing aircraft and describe the functions of those control surfaces with relationship to pitch, roll and yaw.

### Aviation & Space

America's Aviation Adventure .....  
NASA NEW Workshop .....  
National Congress on Aviation  
and Space Education .....  
Space Day .....  
Virginia Department of Aviation ...



### Web Sites

[www.americasaviationadventure.com](http://www.americasaviationadventure.com)  
<http://education.nasa.gov/new>  
[www.capnhq.gov/conference](http://www.capnhq.gov/conference)  
[www.spaceday.com](http://www.spaceday.com)  
[www.doav.state.va.us](http://www.doav.state.va.us)

## SCIENCE MUSEUM OF VIRGINIA CALENDAR

### EXHIBITIONS

Psychology: It's More Than You Think - thru June 30

### IMAX FILMS

Beauty and the Beast - thru May 27  
Journey Into Amazing Caves - Feb. 5-Apr. 15  
China - The Panda Adventure - Feb. 5-Apr. 15  
Lost Worlds: Life in the Balance - Apr. 15 - Sept. 20

### MULTIMEDIA SHOWS

How Did I Get Here - Feb. 2 - June 14

### CARPENTER SCIENCE THEATER CO.:

North Star Light: Pathways to Freedom - Feb. 8 - March 7

**LIVESKY:** Informal "live" planetarium presentation of the month's celestial events. Third Friday of every month (except Oct.)

**SKYWATCH:** Third Friday of every month (weather permitting) on the front lawn.

24-Hour Information: (804) 367-0000  
Box Office: (804) 367-1080  
24-Hour Skywatch Information: (804) 367-8277  
24-Hour TDD Information: (804) 367-9760  
General Information - TDD: (804) 367-6552  
Group Scheduling: (804) 367-6552  
Home Page: <http://www.smv.org>

## VIRGINIA AIR AND SPACE CENTER CALENDAR

### TRAVELING EXHIBITS:

MarsQuest - Opening Jan. 25, 2002

### IMAX FILMS:

The Old Man and the Sea - thru Feb. 28  
Extreme - thru Feb. 28  
Bears - thru Feb. 28

### SIGMA SERIES LECTURES:

**Computational Combustion: From Bunsen Burners to Gas Turbine Combustors**  
Stephen Pope, Feb. 5, 7:30 p.m.

### Mars Odyssey

David Spencer - March 5, 7:30 p.m.

### Environmental Science

Tom Lovejoy - April 2, 7:30 p.m.

**Take this Gene and Call Me in the Morning: The Human Genome Project and the Promise of Gene Therapy**

Francis L. Macrina, May 7, 7:30 p.m.

Call (804) 727-0900 for showtimes  
Visit the Center's Home Page:  
<http://www.vasc.org>  
Visit the Teacher Resource Center Home Page:  
<http://seastar.vasc.mus.va.us>



## Calendar of Events

February 15, 2002

**VASEF and John R. Lillard Scholarships** Postmark deadline for applications for the Virginia Aviation and Space Education Forum (VASEF) Aviation Scholarship and John R. Lillard Scholarship Fund.

March 16, 2002

**Ultralight Safety Seminar** will be held at the Virginia Aviation Museum. Co-sponsored by the Virginia Department of Aviation. For more information call Carolyn Toth at (804) 236-3637.

April 3-6, 2002

**35th Annual National Congress on Aviation and Space Education** will be held at the Crystal Gateway Marriott in Arlington, Virginia. For more information visit [www.capnhq.gov/conference](http://www.capnhq.gov/conference).

April 22, 23, 24, 25, 2002

**Virginia Aviation Safety Week** with speaker Captain Al Haynes (of United Airlines Flight 232). Locations in Richmond, Norfolk, Northern Virginia, and Roanoke. See the Virginia Department of Aviation Calendar for more information.

**For more events check out:**

<http://www.doav.state.va.us/calendar.htm>.

## Aviation Education Supporters:

VASEF projects are funded by our membership fees and by donations from our member organizations. We would appreciate your support through membership in our organization.

\_\_\_\_\_ Regular Membership \$25.00 annually (July - Dec. \$12.50)

\_\_\_\_\_ Non-Profit Organization \$25.00 annually (July - Dec. \$12.50)

\_\_\_\_\_ Corporate Membership \$100.00 annually (July - Dec. \$50.00)

\_\_\_\_\_ New Member \_\_\_\_\_ Renewal

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Name of Organization: \_\_\_\_\_

Occupation: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

Please Return to: Tom Tyndall, VASEF Treasurer  
5702 Gulfstream Road  
Richmond, Virginia 23250-2422



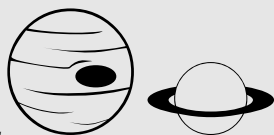
**VASEF Aviation Education News**

5702 Gulfstream Road  
Richmond, Virginia 23250-2422

Presorted  
Standard  
U.S. POSTAGE  
**PAID**  
Richmond, Va  
Permit No. 949

**Inside:**

**Teachers  
Grant  
Recipients**



*America's Aviation Adventure*

# Please Post for Teachers